GOVERNMENT OF INDIA
SCIENCE AND TECHNOLOGY
LOK SABHA

UNSTARRED QUESTION NO:2010
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FORECASTING OF MONSOON
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Will the Minister of SCIENCE AND TECHNOLOGY be pleased to state:

(a) the reasons for significant difference in the monsoon forecast made by different agencies;

(b) the disparity between the monsoon forecast and the actual monsoon during the last three years, and

(c) the steps being taken by the Government to remedy the drawbacks?

Answer

MINISTER OF STATE (INDEPENDENT CHARGE) OF THE MINISTRY OF SCIENCE AND TECHNOLOGY AND MINISTER OF STATE (INDEPENDENT CHARGE) OF THE DEPARTMENT OF OCEAN DEVELOPMENT (SHRI KAPIL SIBAL)

(a) Monsoon forecasts prepared by different agencies differ because they make use of different methods and different input parameters. Basically there are two common methods for preparing long range forecasts, viz statistical and dynamical. Statistical methods are based on using global and regional parameters as the predictors and the forecast method is derived by using past 30-40 years of data. Dynamical methods are mathematical models which treat the physics and dynamics of atmosphere and ocean explicitly. Global sea surface temperature data are used as boundary conditions for this type of models.

(b) The performance of IMD's official forecasts for the last three years is given below:

Year	Actual (% of LPA)	Forecast (% of LPA) Â±4%
2002	81	101
2003	102	98
2004	87	100

LPA: Long Period Average

In 2002, the forecast failed after which two models (8 & 10 parameters) were introduced in IMD which gave correct forecast for the year 2003. But, in the next year the IMD forecast failed to predict the drought of 2004. the Indian drought of year 2004 was not predicted by any model in the world. The drought of 2004 was caused by an unexpected warming in the central pacific which could not be anticipated by the designated El-Nino centers.

(c) IMD is making the best efforts to improve the capabilities in Long Range Forecasting. This year, IMD developed indigenously new statistical models, which showed very promising results. These models in the hindcast mode predicted the drought of 2002 and 2004, which otherwise the operational models failed to do so.

In addition, IMD has also implemented a dynamical prediction system, under a collaborative research program with Indian Institute of Science, Bangalore. For this purpose, IMD adopted the dynamical model developed at the Experimental Climate Prediction Center (ECPC), Scripps Institute of Oceanography, USA. At present, analysis of the performance of this model and its skill is underway.